

TEC/WG TRANSPORTATION SAFETY WIPP-PIG RAIL COMPARISON:

A Framework for Comparing Rail Safety Issues to Safety Issues
Outlined in the WIPP Transportation Safety
Planning & Implementation Guide
(Version 1.0)

Authors' Note: this document was developed for the Transportation External Coordination Working Group (TEC/WG), a forum supported by the U.S. Department of Energy (DOE) for the purpose of exchanging information and views among organizations interested in DOE transportation issues. TEC/WG is not intended to and does not provide "consensus advice or recommendations," nor does it otherwise function as an "advisory committee," as those terms are defined and/or utilized in the Federal Advisory Committee Act.

Overview

The U.S. Department of Energy (DOE) established the Transportation External Coordination Working Group (TEC/WG) in 1992 in an effort to bring together representatives of organizations concerned about routine transport and emergency response issues related to radioactive materials shipments. At semi-annual meetings, TEC/WG participants learn about current and future DOE transportation plans, identify issues of concern to their constituents, and suggest approaches that the Department could take to address those concerns. Starting in 1996, the TEC/WG has formed smaller topic groups to discuss particular issues in detail.

One such group, the Rail Issues topic group, has developed this TEC/WG Transportation Safety Rail Comparison for the purpose of providing summary information to TEC/WG members and participants concerning the current approach used for the rail mode in addressing a variety of transportation issues, objectives, approaches and procedures arising from the shipment of DOE-owned radioactive materials. This document is the result of a series of conference calls and face-to-face meetings involving participants in the group representing the rail industry, the regulatory community, federal managers, research groups, and state and local officials.

A Note on Approach

This Rail Comparison is intended to track the issues raised within the Waste Isolation Pilot Plant (WIPP) Transportation Safety Program Implementation Guide (WIPP-PIG), a cooperative effort of the Western Governors' Association (WGA) Technical Advisory Group for WIPP Transport and the U.S. Department of Energy, and provide information about the rail industry's approach to each of those issue areas. Each of the original issues outlined in the WIPP-PIG are repeated here verbatim under the heading "WIPP-PIG Issues," with corresponding information summarizing current rail practices found under the heading "Current Rail Industry Approach."

The WIPP Program Implementation Guide has become a valuable resource cited by a variety of DOE external stakeholders as an important starting point for DOE managers when planning for a major shipping campaign. This high level of visibility among stakeholders and other interested parties was one of the factors underlying the TEC/WG Rail Topic Group's decision to document the rail industry's approach to transportation safety. Unlike this Comparison, the WIPP-PIG itself is based upon WGA policy resolutions, DOE orders and guidelines, enhanced safety standards, and carrier contract agreements, all of which lend it both a different audience and authority than that which is intended for this summary document.

The purpose of this document is to summarize the basic elements of currently existing guidelines and procedures in place for the rail mode of transport related to the important transportation issues outlined in the WIPP Transportation Safety Program Implementation Guide. It is intended to capture only those safety and operational practices currently employed on a wide scale by the rail industry. It is not the position of the Rail

Topic Group that this Companion should serve as a strict comparison to the WIPP-PIG for transportation campaign planners in the event that planning were undertaken to conduct transuranic waste shipments to WIPP by the rail mode. This document is not intended to serve as a policy document, nor should it be construed in any way to advocate the selection of one particular mode of transport over another for transuranic waste shipments or any other DOE shipping campaign.

Fundamental and Conceptual Differences for the Rail Mode

The Rail Topic Group, through its ongoing discussions related to this and other projects, has outlined three major factors impacting the transportation of radioactive and other materials by rail that participants feel are unique to the rail mode and have a significant impact on ensuring the readiness and capabilities of rail personnel. These factors deserve special consideration on the part of the reader and are outlined below:

1. the unique (i.e., closed) nature of the rail system magnifies the effects of incidents (those requiring diversion from or closing of a rail line) by impeding the normal flow of rail traffic throughout much of the rail system;
2. these magnified effects on rail operations provide financial and other incentives for the rail industry to employ innovative technical and policy measures aimed at enhancing safety through highly trained and prepared personnel and equipment maintained at a high level of service worthiness; and
3. the Federal Railroad Administration and regulations that fall under its jurisdiction which pertain to the training and preparedness of rail crews serve a stewardship role, providing baseline guidance and oversight while not impeding industry safety standards and practices.

Section 1: "High-Quality" Crews and Carrier Compliance

WIPP-PIG Issue: Highly qualified, well-trained drivers; diligent vehicle maintenance; carrier compliance with regulations; and enhanced carrier and driver performance requirements can greatly reduce the risk and consequences of truck incidents.

Current Rail Industry Approach: Although the possibility of incidents cannot be eliminated, it can be significantly reduced by the presence of stringent qualifications and training, strict adherence to all applicable laws and regulations, and safety and performance provisions in carrier transportation contracts, all of which are in place today.

Unlike highway shipments of radioactive materials, the vast majority of shipments by rail are handled by multiple carriers. Train crews from each carrier generally only operate on their own railroad's lines; additionally, locomotive engineers are qualified over routes on which they routinely operate. One highly positive outcome of this type of qualification process is that train crews become very familiar with region-specific conditions given that they cover the same track in the same parts of the country on a regular basis. It is also important to note that multiple carrier arrangements provide opportunities for crew changes and hence provide for well-rested operators.

The Federal Railroad Administration requires recurrent and function-specific training for personnel performing specific work, such as train crews, dispatchers, and signal maintainers. FRA regulations mandate recurrent training at a minimum interval of 3 years, but in cases of changed or redefined job functions or newer employees training occurs at more frequent intervals. Regulations also require that all employees receive specific training directly tailored to job function. These regulations, although highly detailed, are meant to serve as a baseline set of requirements for the industry, and carriers often institute measures to exceed those requirements.

Regulatory compliance on the part of rail carriers in the area of rail safety (including crew training and preparedness and equipment inspection) is assured by rail industry rules, standards, and recommended practices

which correspond with and in some cases enhance said regulations. These industry rules, standards, and practices are summarized in the Rail topic group's Comparison of Commercial Vehicle Safety Alliance Recommended National Procedures and Out-of-Service Criteria for the Enhanced Safety Inspection of Commercial Highway Vehicles Transporting Transuranics, Spent Nuclear Fuel, and High Level Waste to Rail Inspection Standards matrix, released in July 1998. This document provides a detailed comparison of rail industry standards and practices with the CVSA's Enhanced Safety Inspection requirements for highway cargo, and is available on the TEC/WG website or by contacting the TEC/WG project manager. Additionally, safety and performance provisions are standard features of DOE contract carrier agreements, and provide another measure of assurance that regulatory requirements are met.

Section 2: Independent Inspections

WIPP-PIG Issue: A quality, independent inspection program assures that drivers and vehicles perform at optimum levels and that radiation levels remain within allowable limits.

Current Rail Industry Approach: Inspection and enforcement activities for radioactive material transportation by rail are generally conducted jointly by the Federal Railroad Administration and state agencies through the FRA State Participation Program. Through this program, the FRA provides on-the-job training to inspectors, coordinates direct inspection, and avoids duplication by monitoring state activities. Participating states are able to impose standards of their own definition only in the event the following conditions are met: doing so is necessary to reduce a local hazard; such an action does not impose a burden on interstate commerce; and there is no conflict or contradiction with federal law.

Equipment and Infrastructure Inspection

Current regulations require that inspections are conducted on all rail equipment prior to departure from the point of origin and at distances of no more than 1,000 miles. En-route inspections of mechanical equipment are generally conducted at routine stopping points so as not to unduly inhibit the normal flow of freight. Extra-regulatory measures designed to ensure the safe working condition of all mechanical equipment as well as a safe operating environment for the train are also prevalent throughout the industry, including the utilization of what are commonly referred to as "defect detectors." Defect detectors include items such as hot box detectors, dragging equipment detectors and slide fences, which are spaced periodically along the right of way to detect overheated wheel bearings, dragging rail equipment, and rock slides (respectively). Inspections are conducted whenever a defect detector is triggered as well as at routine stops, as noted above.

It is important to note that federal regulations do not prevent rail carriers from conducting additional or enhanced inspections on equipment and infrastructure beyond that which is detailed within the regulations; carriers frequently adopt such extra-regulatory procedures voluntarily.

Radioactive Cargo Inspection

The experience of the FRA and most major rail carriers demonstrates that states and other non-federal entities have sought and will continue to seek a significant role in the inspection of trains carrying radioactive cargo, for a variety of reasons. The fact that non-federal agencies seek assurances as to the safety and security of shipments involving radioactive materials led the FRA to develop its State Participation Program, which provides a vehicle for addressing some of the safety concerns of states and other non-federal entities.

It is important to note the necessity of considering both the need for an effective and participatory inspection process and the need to ensure the free flow of interstate commerce by rail. Although thorough inspections play a critical role in providing for the safe and efficient transport of radioactive materials, these inspections should not be conducted in such a way as would unduly hinder the movement of the shipment being inspected or of other freight or passenger trains or would themselves lead to a safety concern. While it is true that precise

inspections lead to a reduction in serious incidents toward the overall objective of the safe and unimpeded movement of freight, a disorganized inspection procedure or an inspection that is subject to mistrust among the governmental and private entities concerned will contribute little to the actual safety of the shipment and may cause major delays.

The FRA, in a coordinated effort with DOE, the Association of American Railroads (AAR), railroad labor organizations, and representatives of affected states, has recently developed the Safety Compliance Oversight Plan (SCOP). The SCOP represents a revision of previous FRA policy and seeks to incorporate an updated and enhanced knowledge of the latest developments and technologies impacting the safe transportation of spent nuclear fuel and high-level radioactive waste by rail. This proactive effort was motivated largely by the FRA's commitment to ensuring that the railroad industry maintain its unblemished safety record for nuclear materials shipments into the future, despite the sharp increase in the number of high-level nuclear waste shipments which is expected to occur. It is important to note that the SCOP is intended to complement rather than supplant the joint inspection arrangement with participating states as formulated in the state participation program. To this end, the SCOP will utilize the current inspectors participating in that program wherever possible in order to achieve implementation of items covered by the Plan, and will encourage new and/or expanded participation for non-participatory states and current participants.

Section 3: Inclement Weather and Track Conditions

WIPP-PIG Issue: Bad weather and road conditions create hazardous travel conditions.

Current Rail Industry Approach: Title 49 of the Code of Federal Regulations covers a wide range of issues relevant to inclement weather and track conditions; examples of items provided for in 49 CFR include baseline standards for track and signal inspection, inspection of grade crossings, and implementation of warning devices at grade crossings. In addition to these baselines codified in Title 49, industry rules and standards provide for bridge and track inspection and the promulgation of "bad weather policies" by rail carriers. Industry policies for inclement weather typically include: high water provisions; contract arrangements for up-to-the-minute forecasting from the National Weather Service; the mandatory use of appropriate rail anchors to preclude "sun kinks" in extremely hot weather and "pull-a-parts" in sub-zero conditions in welded rails. These guidelines, which prevail throughout the rail industry, are unique to the rail mode and reflect the particular problems inclement weather poses to rail track.

Ice, rather than snowfall, is a compelling problem for the rail industry. Current technology for treating the outcomes of significant icing includes: drying systems within the airbrakes, to prevent the build-up of moisture in the braking system; and switch heaters, which are uniformly used in cold climates to prevent switches from freezing and becoming inoperable. Additionally, the "bad weather policies" mentioned above routinely contain provisions for alternate routes in the event of impassible conditions caused by severe icing or other major weather events. Rail carriers also use train control and monitoring systems to identify the location of their trains within the rail system, and make informed decisions based on this information in order to avoid or minimize potential weather-related risks.

Section 4: Safe Haven During Abnormal Conditions

WIPP-PIG Issue: Shipments may be delayed en route due to mechanical problems, bad weather or hazardous road conditions or other unanticipated problems.

Current Rail Industry Approach: The Western Interstate Energy Board (WIEB), under a contract with WGA, developed a set of criteria for determining safe parking areas for WIPP shipments carried by truck, which DOE has agreed to implement. The hierarchy supporting these criteria is generally approved by the rail industry. In the event of an incapacitating incident, a decision would be made on-site as to where to locate the affected railcar(s), with a DOE facility being the most desirable, and other federal facilities a secondary option, with the

third choice a protected "siding"—a safe, secure position along the track. It is important to note that location decisions made by a rail carrier as pertain to removal of a railcar or cars to a safe haven are often carried out in concert with impacted states, if such consultation does not cause unnecessary delay in managing the incident. In most such events, the initial notification of the state's designated point of contact is the responsibility of the shipper, with subsequent incident management (including consultation as to the relocation of railcars) led by a joint carrier/shipper team and involving affected stakeholders as deemed appropriate.

It should be noted that all major rail carriers produce and revise their own series of contingency plans which cover all freight, including radioactive materials. These contingency plans span a wide range of possible hazards and problems threatening the continued safe operations of each particular carrier. Examples of hazards accounted for include derailments, track damage, and the like, and function much the way a decision tree does, in presenting a series of steps that take into account the nature and location of the problem at hand.

Section 5: Advance Notice of Shipments/Shipment Status Information

WIPP-PIG Issue: States need annual shipment schedules, advance notice of shipment dates, information on the status of shipments en route, and the ability to communicate directly or indirectly with the drivers.

Current Rail Industry Approach: The standard notification procedure and tracking capabilities used for other modes of transporting radioactive materials retain their utility for the rail mode. The Nuclear Regulatory Commission (NRC) as directed by Congress, has promulgated regulations providing for "timely notification to the Governor of any State prior to the transport of nuclear waste, including spent nuclear fuel, to, through, or across the boundaries of such State." As promulgated, Title 10 of the Code of Federal Regulations contains two provisions requiring the notification of state governors or their designees in advance of shipments of spent nuclear fuel and certain other radioactive materials. 10 CFR Part 71.97 states that shippers of smaller quantities of SNF and other radioactive materials must provide notification in writing to state designees and the NRC not less than 7 days prior to departure. This notification must contain:

- the name, address, and telephone number of the shipper, the carrier, and the receiver of the shipment;
- a description of the material being shipped;
- the point of origin of the shipment;
- the 7 day period of both estimated departure and arrival;
- a point-of-contact with a telephone number that can provide current shipment information.

Part 73.37 of Title 10 has more involved safeguards requirements for shipments of spent fuel in excess of 100 grams, such as requirements for armed escorts, sabotage prevention plans, advance approval of route by the NRC, et.al. This section also requires the advance notification of governors' designees, with the major difference being that it also requires that notification to contain estimated times of arrival and departure from each state in question, as well as a listing of the routes to be used in each state. These regulatory requirements for advance notification apply regardless of mode.

In most situations, the rail dispatch center usually serves as the single best source for information about the location of any given train at any given time. The dispatch centers are generally located in a centralized operations center, and consist of regional or territory-specific units with personnel expressly devoted to operations concerns within those regional units. Henceforth, it might prove practicable for information-sharing arrangements to be constructed (where missing) or enhanced (where lacking) between the dispatch centers of the various carriers involved in a campaign and the responsible shipping offices, who in turn could notify governors' designees for the affected states of important developments. TRANSCOM, a widely endorsed tracking software used for shipments such as those destined for WIPP, is also available as a useful tool for monitoring trains as well as highway shipments of a variety of radioactive materials.

Section 6: Medical Preparedness

WIPP-PIG Issue: Effective medical response to a WIPP transportation incident requires a clear understanding of radiological response plans and procedures by emergency medical personnel in the field and at hospitals, adequate training, and the necessary supplies and equipment.

Current Rail Industry Approach: Medical personnel along rail transportation corridors, as is the case with other modes of transport, are an integral component of any comprehensive emergency response system. Important components in maintaining such a system include: assessments of hospital readiness; development and refinement of radiological response plans and procedures; training, drills and exercises; and the identification and purchase of appropriate radiological and non-radiological supplies and equipment.

Affected states along major rail corridors should develop working relationships with potentially affected medical facilities and personnel to ensure the development of adequate, up-to-date radiological response plans and procedures. These plans and procedures must include provisions for the protection of emergency medical responders and also for the treatment of incident victims who may have been exposed to or contaminated by radioactive materials. Several plans and sets of procedures are available to serve as models. These reflect guidance provided by such organizations as the American Medical Association, American College of Emergency Physicians, and the Joint Council on the Accreditation of Hospital Organizations.

Training for both pre-hospital and hospital emergency medical personnel is another important element of an emergency medical preparedness program. Emergency medical technicians, paramedics, and hospital emergency department personnel who may be required to handle and treat transportation incident victims must be prepared to do so in a safe, effective manner. Training encompasses classroom courses, in-hospital drills, and field exercises. States should assess if Emergency Medical Technician and Paramedic training includes hazardous materials response in the appropriate curricula. That assessment should specifically include radioactive materials, and patient care related to potential exposure or contamination from radioactive materials. The continuity of pre-hospital and hospital training response procedures should also be assessed.

This section was reviewed in the fall of 1998 by a group of radiological and emergency response experts and medical instructors, who determined that the issues related to medical training and preparedness noted in this section are neither mode nor route specific, and hence a more intensive treatment of them herein would be beyond the scope and intent of this companion.

Section 7: Mutual Aid Agreements

WIPP-PIG Issue: WIPP transport incidents may occur near state borders or exceed state and local emergency response capabilities. State and local officials must be able to access the closest emergency response resources, whether they are in an adjoining state or part of a federal agency.

Current Rail Industry Approach: The term "mutual aid agreement" refers specifically to agreements developed between governmental entities, not between governmental and private entities such as rail carriers. The tractability of these types of agreements often depends on the participation of state and local emergency responders, who often are responsible for initiating and coordinating them. Nevertheless, the rail industry does encourage the maintenance and implementation of mutual aid agreements as an effective tool for dealing with radioactive materials incidents that occur along the border of two or more states, or in cases where a particular state or local jurisdiction may be lacking the resources necessary to respond to an incident. In the event that they do not, existing agreements should be amended to explicitly treat rail incidents involving radioactive materials, and new agreements should be structured accordingly.

Additionally, rail carriers continually develop and revise their contingency plans for dealing with all hazardous materials (including radioactive materials) incidents. Such contingency plans take effect regardless of the status of mutual aid agreements in or between states or the location of an accident. These plans are deployed through regional railroad operations centers, and share a general concept and focus while featuring a customized

approach to local and freight-specific conditions and concerns. Contingency plans serve to clearly delineate private and public responsibilities and to define the approach that will be taken in the event of a rail incident; mutual aid agreements between governmental entities, while important, would only serve to supplement the carrier's contingency plan.

Section 8: Emergency Response Plans & Procedures

WIPP-PIG Issue: Emergency response plans and procedures help ensure coordinated, timely, and effective incident response.

Current Rail Industry Approach: In the case of planning for rail emergencies, the rail carriers themselves commit much of the needed resources for developing, testing, and implementing response plans. The threat of economic loss is at the heart of the industry's interest in ensuring their response plans provide for a timely and effective resolution to any incident. This is due largely to the fact that the carriers are tasked with taking the response initiative on their private rights-of-way and track. That said, federal, state, and local agencies do have distinct responsibilities in any response effort, and do therefore participate in a variety of ways in the planning process.

National planning and coordination for emergency response is accomplished through the National Response Team (NRT). Depending upon the situation, the NRT consists of representatives from the following agencies and actors:

- United States Coast Guard (USCG)
- United States Environmental Protection Agency (US EPA)
- standing Regional Response Teams (RRT's)
- Federal Emergency Management Agency (FEMA)
- United States Department of Defense (DOD)
- United States Army Corps of Engineers
- United States Navy Supervisor of Salvage (SUPSALV)
- United States Department of Energy (DOE)
- United States Department of Agriculture (USDA)
- U.S. Forest Service
- Agricultural Research Service
- Soil Conservation Service
- Animal & Plant Health Inspection Service
- Food Safety & Inspection Service
- United States Department of Commerce

National Oceanic & Atmospheric Administration

- United States Department of Health & Human Services (HHS)
- United States Department of the Interior (DOI)
- U.S. Fish & Wildlife Service
- National Biological Survey
- U.S. Geological Survey
- Bureau of Land Management
- Minerals Management Service

The NRT provides policy and program direction to the Regional Response Team (RRT). Regional planning and coordination of preparedness and response actions is accomplished through the RRT. The RRT agency membership parallels that of the NRT, as described in 40 CFR § 300.110, but also includes state and local representation. Regional Response Teams coordinate with Area Committees (AC's) in the preparation of Area Contingency Plans (ACP).

Local emergency response plans are prepared by Local Emergency Planning Committees (LEPC's) as required by section 303 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA Title III) (EPCRA). LEPC's are generally comprised of local emergency response personnel, police and fire departments, local government, and local industries. Railroads have generally participated on the LEPCs in planning for emergency response to possible transportation accidents along "Key Routes." A "Key Route" is defined as any track with a combination of 10,000 car loads or intermodal portable tank loads of hazardous materials, or a combination of 4,000 car loadings of Poison Inhalation Hazard (PIH) (Hazard Zone A or B), flammable gas, Class 1.1 or 1.2 explosives (Class A), and environmentally sensitive chemicals over a period of one year. "Key routes" have defective bearing detectors placed a minimum of 40 miles apart unless an equivalent level of protection is installed based upon improved technology. Main track on "Key Routes" is inspected by rail defect detection and track geometry cars, or an equivalent level of inspection, no less than two times a year. Sidings along "Key Routes" are inspected no less than once a year. Any track used for meeting and passing must be FRA Class 2 track or better. If a meet or pass must occur on less than Class 2 track, due to an emergency, one of the trains must be stopped before the other train passes.

The Federal Emergency Management Agency (FEMA) provides guidance, policy and program advice, and technical assistance in hazardous materials, chemical, and radiological emergency preparedness activities (including planning, training, and exercising). DOE generally provides designated On-Scene Coordinators (OSC's) / Remedial Project Manager (RPM's) that are responsible for taking all response actions with respect to releases where either the release is on, or the sole source of the release is from, any facility or vessel under its jurisdiction, custody, or control, including vessels bareboat-chartered and operated. In addition, under the Federal Radiological Emergency Response Plan (FRERP), DOE provides advice and assistance to other OSCs/RPMs for emergency actions essential for the control of immediate radiological hazards. Incidents that qualify for DOE radiological advice and assistance are those believed to involve source, by-product, or special nuclear material or other ionizing radiation sources, including radium, and other naturally occurring radio nuclides, as well as particle accelerators. Assistance is available through direct contact with the appropriate DOE Radiological Assistance Program Regional Office.

Where appropriate, when a discharge or release involves radioactive materials, the lead or support federal agency shall act consistent with the notification and assistance procedures described in the appropriate Federal Radiological Plan. For the purpose of the NCP, the FRERP is the appropriate plan. Most radiological discharges and releases do not result in FRERP activation and should be handled in accordance with the NCP. However, releases from nuclear incidents subject to requirements for financial protection established by the NRC under the Price-Anderson amendments (section 170) of the Atomic Energy Act are excluded from CERCLA and NCP requirements.

Section 9: Emergency Response Equipment

WIPP-PIG Issue: Emergency responders need specialized equipment to respond to a WIPP shipment incident.

Current Rail Industry Approach: Personal safety equipment is essential to ensure the safety of emergency responders responding to a radmat transportation incident involving either the rail or highway mode. This recovery equipment includes radiation detection and personal protective equipment (PPE) that is up-to-date, well-maintained, and regularly inspected and repaired, as necessary.

Equipment needs vary, contingent on the role of the responder. First responders, for instance, are likely to intervene in the immediate incident scene in the interest of a lifesaving rescue. "Bunker gear" and self-contained breathing apparatus are sufficient for this low duration exposure, and are normally owned by most fire departments. Rail carriers often utilize contractors supplied with personal protective equipment to aid in the initial assessment and management of an incident scene.

Secondary responders, such as state response teams, have the responsibility of assessing the nature and extent of the incident and identifying contaminated individuals. These tasks would require PPE such as Tyvek suits and respirators. These tasks would also logically require radiation detection equipment and other instrumentation necessary to complete area radiation and contamination surveys and cleanup. The responsibility for immediate site assessment and cleanup in the event of a rail spill is with the rail carrier, who typically will provide contractor personnel to conduct these activities. All necessary personal protective equipment for railroad personnel on scene will be provided by the railroads; protective equipment for contract personnel will be provided by their employer. Responsibility for longer-term site characterization and oversight lies with the appropriate state agency, who is also responsible for providing the equipment necessary to conduct these activities to all involved persons.

Section 10: Training and Exercises

WIPP-PIG Issue: An incident involving a WIPP shipment poses unique problems for emergency response personnel not usually addressed as part of their hazardous materials training.

Current Rail Industry Approach: Training needs and capabilities do not differ greatly by mode. One method that the rail industry employs to ensure that they continue to meet those needs and capabilities is through close cooperation with Local Emergency Planning Committees (LEPCs). LEPCs, are local emergency planning structures required by SARA Title III, the Emergency Planning and Community Right-to-Know Act (EPCRA), and usually consist of emergency response professionals with a detailed knowledge of hazardous materials. Rail carriers often work closely with these officials to plan, structure, and carry out emergency response training exercises.

The Department of Energy has numerous courses available as part of their Transportation Emergency Training for Response Assistance (TETRA) program. A course entitled TETRA/RAIL is one of the programs available. This course includes assistance techniques for use on rail incidents involving radioactive and multiple other potential hazards to responders. The course also addresses those specific requirements involved in response to a rail incident, and how incidents differ from radiological incidents on highways. The course is taught at the Association of American Railroad's Transportation Technology Center in Pueblo, CO where models of a SNF cask and a TRUPACT are used as part of the training.

Compliance with all applicable federal, state, local, and industry standards regarding the training of employees assigned to positions requiring emergency response operations involving radioactive materials is recommended. The group supports compliance with OSHA 29 CFR 1910.120 training requirements, which apply to emergency response operations involving the release of hazardous substances including radioactive materials (as specified by 49 CFR 172.101). This regulation includes requirements for safety and health training programs to be provided by employers; these programs include radiation hazards when applicable. Rail shippers of radioactive material also conduct periodic exercises or drills with potentially involved state, local, and tribal officials, scheduled on an ad-hoc "by need" basis; these exercises may involve rail carrier personnel if necessary.

Section 11: Public Information and Participation

WIPP-PIG Issue: The public and news media have a heightened concern about the transport of radioactive materials.

Current Rail Industry Approach: While communication plans coordinated by the shipper (in this case, DOE) exist for rail as well as highway shipments, the distinction is clear in the case of rail shipments that the shipper is responsible for taking the lead for coordinating communication and outreach with the public and news media. One outcome of this delineation of duty is that the carrier must carefully avoid any unapproved release of information about a particular shipment. The carrier may release to the public only that information specified by the shipper, and only at the designated interval(s) outlined by the shipper, as stipulated by contractual arrangement and current statutory requirements.

Typically, major rail carriers centralize their communications efforts through the development of communication plans, which are then carried out both on a regional basis and on a freight-specific basis. In the event that one shipment is handled by multiple carriers (which for rail is often the case), inter-carrier agreements usually exist which take into account the degree of security required by the shipper and the sensitivity of transferring proprietary information about the shipment between carriers. In these type of arrangements, the shipper of record would often take the lead in developing multiple (yet coordinated) communication plans with the various carriers.

Section 12: Rail "Routing" of Radioactive Materials Shipments

WIPP-PIG Issue: There are various route options for moving transuranic waste from and between generators, storage sites, and the WIPP facility.

Current Rail Industry Approach: Rail routing of large quantity radioactive materials is treated differently from highway routing from a regulatory standpoint. Fundamental differences between the two modes, such as the prevalence of multiple carriers and inter-modal transfers in the case of rail, drive these regulatory distinctions. Regulations like those for truck shipments do not exist for rail transport; instead, a shipper and rail carrier normally plan the route jointly, considering such factors as starting and ending points, the shortest distance/time in transit, and track and bridge conditions relative to the weight of the shipment load.

Over the years, it has been suggested that DOT promulgate rail routing guidelines similar to the highway regulations in HM-164 to eliminate or reduce rail shipments of radioactive materials through highly populated areas. DOT has not promulgated rail routing guidelines, and the railroad industry is strongly opposed to new routing regulations. There are few realistic alternatives to shipping through major urban areas because the highest quality tracks and signal systems serve the high-density rail traffic between major cities, because key carrier interchange points are located in major cities, and because widespread rail abandonment has reduced routing options generally.

In conjunction with their routing plans, some shippers (including some DOE shippers) as a matter of practice request that the FRA inspect the rail route for operational safety and safeguards. The shipper is required to send the rail plan to the NRC, which (as it does for highway) examines physical security considerations. Railroads have used special ("dedicated") trains for selected shipments that employ additional operational requirements; however, these specific requirements generally do not themselves affect routing of the shipments.

It is instructive to note that railroad carriers generally route hazardous (including radioactive) cargo along what are commonly referred to as "Key Routes." A "Key Route" is defined as any track with a combination of 10,000 car loads or intermodal portable tank loads of hazardous materials, or a combination of 4,000 car loadings of Poison Inhalation Hazard (PIH) (Hazard Zone A or B), flammable gas, Class 1.1 or 1.2 explosives (Class A), and environmentally sensitive chemicals over a period of one year. "Key routes" have defective bearing detectors placed a minimum of 40 miles apart unless an equivalent level of protection is installed based upon improved technology. Main track on "Key Routes" is inspected by rail defect detection and track geometry cars, or an equivalent level of inspection, no less than two times a year. Sidings along "Key Routes" are inspected no less than once a year.

Those seeking a more detailed discussion of routing issues generally, and rail routing in particular, should see the TEC/WG Routing Topic Group's discussion paper entitled Routing Issues Related to U.S. Department of Energy Radioactive Materials Transportation: Discussion and Recommendations, released in April, 1998.